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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,880	03/30/2004	April Dawn Hixson-Goldsmith	HSJ9-2003-0203US1	5758

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EXAMINER	
MAGEE, CHRISTOPHER R	
ART UNIT	**PAPER NUMBER**
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/813,880	HIXSON-GOLDSMITH ET AL.	
	Examiner	Art Unit	
	Christopher R. Magee	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-25* is/are allowed.

6)☒ Claim(s) *26-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- Claims 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (hereinafter Chen) (US 6,724,569 B1).

- Regarding claim 26, Chen discloses a hard disk drive comprising:

at least one hard disk 410 being adapted for rotary motion upon a disk drive;

at least one slider device 420 having a slider body portion being adapted to fly over said hard disk;

a magnetic head (100; part of merged head assembly 420) being formed on said slider body for writing data to said hard disk, said magnetic head [Figure 4] including:

a first magnetic pole 115;

a second magnetic pole 135;

a write gap layer 120 being disposed between said first and second magnetic poles, where said write gap layer includes at least two sublayers 120a, 120c, including an adhesion sublayer

and an electrically conductive, non-magnetic sublayer [i.e., layers may be formed of the same, or of different materials; col. 6, lines 6-10].

As the claims are directed to a magnetic head, per se, the method limitation(s) appearing in lines 2 to 8 of claim 26, can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., *"electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer*", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., *"electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer*", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

- Regarding claims 27, Chen discloses the gap sublayers are about 200 Angstroms [col. 5, lines 60-64]. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation and optimization in the absence of criticality. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D.C. 324, 135 F2d 11, 57 USPQ 136.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

- Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (hereinafter Chen) (US 6,724,569 B1) as applied to claim 26 above, and further in view of Han et al. (hereinafter Han) (US 6,960,281 B1).

- Regarding claim 28, Chen discloses all the features, *supra*, except said electrically conductive, non-magnetic sublayer is comprised of a material selected from the group consisting of Rh, Ru, Ir, Mo, W, Au, Be, Pd, Pt, Cu, PtMn and Ta.

Han teaches the use of gap-filling materials NiCr, Cr, NiFeCr, Rh and Ru, that satisfy the equal etch rate criterion of both the shield layer material, the seed layer materials and plated pole portion [col. 3, lines 10-25]. Also, Han teaches a pole piece comprised of a CoFe alloy (i.e., CoNiFe) [col. 3, lines 38-41].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the gap sublayers and the second magnetic pole of Chen with the materials as taught by Han.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the gap sublayers and the second magnetic pole of Chen with the materials as taught by Han because they are known gap layer materials that are used in magnetic heads and using them is merely a substitution of art recognized equivalents.

- Regarding claims 29 and 30, Chen discloses said write gap layer 120 also includes a third sublayer 120b hat is disposed between said adhesion layer and said electrically conductive, non-magnetic sublayer. Chen does teach the third sublayer is comprised of a material that is etchable in reactive ion etch process.

Han teaches the use of gap-filling materials NiCr, Cr, NiFeCr, Rh and Ru, that satisfy the equal etch rate criterion of both the shield layer material, the seed layer materials and plated pole portion [col. 3, lines 10-25].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the gap sublayers of Chen with a third sublayer material as taught by Han.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the gap sublayers of Chen with the a third sublayer material as taught by Han because they are known gap layer materials that are used in magnetic heads and using them is merely a substitution of art recognized equivalents. Plus, the IBE rate is substantially the same as the IBE rate of both the shield layer and the materials of the seed layer and plated pole portion [Han; col. 3, lines 17-20].

Allowable Subject Matter

3. Claims 1-25 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

- Claims 1 and 16, specifies a magnetic head, which requires:

> *"wherein said adhesion layer is disposed upon said first magnetic pole, and said second magnetic pole is <u>disposed directly upon</u> said electrically conductive, non-magnetic sublayer."*

The prior art of record fails to fairly, teach, show or suggest, by either anticipating or rendering obvious, the invention as set forth in claims 1 and 16 of the instant application. Furthermore, the search made does not detect the combined claimed elements as set forth in pending claims 1 and 16. None of the cited prior art of record disclose such a magnetic head, as set forth in the manner, function and relationship relative to other claimed structures as prescribed by claims 1 and 16.

Therefore, these features, in combination with other features of claims 1 and 16, are not anticipated by, nor made obvious over, the closest prior art of record of Chen.

Response to Arguments

4. Applicant's arguments filed 11/30/2006 have been fully considered but they are not persuasive. The Applicant asserts on page 12 of the Remarks:

"Regarding independent claim 26, it recites a method for fabricating a magnetic head and it recites the step of electroplating a second magnetic pole upon the electrically conductive, non-magnetic sublayer of the write gap layer. Chen '569 fails to teach the utilization of such a write gap sublayer in fabricating the second magnetic pole directly thereon. Rather, Chen teaches the use of a separate seed layer that is fabricated upon the write gap layer, where the second magnetic pole is electroplated upon the seed layer. Applicant therefore respectfully submits that independent method claim 26 recites limitations that are not taught by Chen '569."

As the claims are directed to a magnetic head, per se, the method limitation(s) appearing in lines 2 to 8 of claim 26, can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., *"electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer*", for instance], and thus product in such claim is

unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., *"electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer"*, for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976). Therefore, the rejection of claims 26-30 is upheld.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-4: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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March 2, 2007
crm